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Research Paper

Effect of Multidimensionality-Based Vs. Hybrid-Based Models on Iranian Intermediate EFL Learners' Reading Comprehension Ability across Gender

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Abstract
This study compares the effectiveness of two innovative approaches—multidimensional and hybrid instructional models—with traditional methods for improving reading comprehension among Iranian intermediate EFL learners, also considering possible gender differences. Drawing on Snow's multidimensional reading framework and Sweller's Cognitive Load Theory, a quasi-experimental design was used. From an initial pool of 120 learners, 60 qualified as intermediate after taking the Oxford Placement Test (OPT) and were randomly placed into three groups: multidimensional, hybrid, and control. Reading comprehension was measured using passages from IELTS and the British Council in both pretests and posttests. A mixed-design ANOVA revealed that the multidimensional model produced the most significant gains in reading comprehension (mean improvement = 3.40 points), outperforming both the hybrid (0.90 points) and control groups (1.05 points). No statistically significant differences emerged for gender, nor were there interactions between gender and instructional method. The results suggest that approaches addressing cognitive, metacognitive, affective, and social dimensions can substantially boost EFL reading comprehension. The study underscores the practical benefits of adopting a multidimensional instructional model to support reading development in Iranian EFL contexts and to guide evidence-based teaching practices in similar settings.

Keywords: EFL reading comprehension, Gender differences in language learning, Hybrid learning model, Iranian intermediate learners, Multidimensional reading instruction.

Introduction

Reading comprehension is a vital skill for English as a Foreign Language (EFL) learners, especially for Iranian students at the intermediate level, who often struggle in traditional classroom settings. In many Iranian EFL classes, reading instruction still relies heavily on translation-based, teacher-centered methods. While these approaches can convey meaning, they often limit active engagement and fail to reflect the complex, interactive nature of reading. Effective comprehension requires more than simply decoding words—it involves strategic processing, activating prior knowledge, and maintaining motivation throughout the reading task (Snow, 2010).

Recent shifts in language teaching have moved toward learner-centered approaches that integrate technology and promote active learning strategies. Two such approaches have attracted attention for their potential to address the challenges faced in EFL contexts: hybrid learning—which blends in-person instruction with digital tools—and multidimensional reading models, which incorporate cognitive, metacognitive, affective, and social dimensions into the learning process (Boyle, 2024; Klimova & Kacetl, 2015).

Despite the growing theoretical support for these methods, empirical evidence comparing their effectiveness in the Iranian EFL context remains limited. Moreover, the role of gender in shaping reading comprehension outcomes within these instructional models is not fully understood. While some studies suggest that female learners tend to outperform males due to higher motivation and strategy use (Guerrero, 2015), others emphasize the influence of context and instructional design. Implementation in Iran also faces additional hurdles, including limited technological infrastructure and cultural hesitance toward non-traditional teaching methods.

This study addresses these gaps by examining how multidimensional and hybrid instructional models compare to traditional approaches in improving reading comprehension among Iranian intermediate male and female EFL learners. The research is anchored in Snow's (2010) multidimensional model of reading—which views reading as an interactive process shaped by linguistic, cognitive, and social influences—and Sweller's (2024) Cognitive Load Theory, which stresses the importance of reducing unnecessary mental effort to optimize learning. Building on these frameworks, and informed by recent studies promoting integrated, technology-enhanced instruction (Boyle, 2024; Rahmanu & Molnár, 2024), this research aims to contribute practical, evidence-based insights for EFL pedagogy.

This study focuses on two main research questions as follows:

RQ1. *To what extent do different instructional approaches (multidimensional, hybrid, traditional) influence improvements in reading comprehension among Iranian intermediate EFL learners from pretest to posttest?*

RQ2. *Are there statistically significant differences in reading comprehension gains between male and female learners across these instructional conditions?*

By addressing these questions, the research seeks to identify teaching methods that can overcome the limitations of translation-based pedagogy. The findings aim to guide Iranian EFL teachers and curriculum designers toward evidence-based practices that leverage multidimensionality and technology to boost learner outcomes.

Literature Review

In recent years, English as a Foreign Language (EFL) instruction has undergone significant transformation, driven by a shift toward learner-centered practices and the integration of digital tools. In Iran, however, many classrooms still depend heavily on teacher-directed, translation-based reading lessons. This traditional approach often restricts learners' ability to develop strategic reading skills or to engage critically with texts, a concern highlighted by Mohammadi

Bazargani et al. (2022). Such methods stand in contrast to the multifaceted nature of reading, which involves decoding text, making inferences, activating background knowledge, and sustaining emotional engagement (Chen, 2020; Snow, 2010).

Multidimensional Reading Model

Snow's (2010) multidimensional reading model provides a comprehensive framework for understanding reading as the product of four interrelated dimensions: cognitive, metacognitive, affective, and social.

Cognitive dimension – focuses on explicit instruction in reading strategies such as skimming, scanning, making inferences, and summarizing. These strategies help learners actively process and understand texts (Chen, 2020; Sasani et al., 2018).

Metacognitive dimension – involves teaching learners to monitor, regulate, and evaluate their own comprehension processes, fostering independence and self-awareness in reading (Wang, 2023; Zhang, 2024).

Affective dimension – emphasizes motivation and emotional engagement by using multimodal, culturally relevant materials to keep learners interested and persistent (Men, 2023; Nguyen & Nguyen, 2024).

Social dimension – promotes collaborative learning through peer discussions and feedback, enabling learners to negotiate meaning and achieve deeper understanding (Pakdaman et al., 2021).

Empirical research supports the effectiveness of multidimensional instruction. For example, Rahmanu and Molnár (2024) found that multimodal reading programs—including videos, podcasts, and interactive e-books—boosted both comprehension and emotional engagement among university-level EFL learners. Boyle (2024) reported that combining explicit strategy teaching, reflective practice, and collaboration improved test performance and maintained learner motivation. Similarly, Sasani et al. (2018) showed that multidimensional instruction in Iranian high schools enhanced students' inference-making and summarization abilities. Unsworth and Mills (2020) further demonstrated that multimodal resources strengthened vocabulary retention and inferencing skills, confirming the benefits of combining cognitive and affective engagement.

Hybrid Reading Model

The hybrid reading model blends face-to-face instruction with online learning, aiming to capture the benefits of both. This approach often includes interactive features such as glossaries, annotation tools, and videos to accommodate different learning styles (Lim & Park, 2023). Learners can work independently with digital resources while also participating in in-class discussions and activities, encouraging both flexibility and autonomy.

Research highlights the potential of hybrid learning to enhance reading skills. Soudkhah Mohammadi et al. (2025) found that a hybrid reading program in Iranian universities significantly improved both comprehension and learner satisfaction compared to traditional methods. Klimova and Kacetl (2015) observed increased engagement and self-regulation among Czech EFL learners in hybrid settings, while Muñoz Melo and Guayacán Velasco (2018) reported gains in digital literacy and self-directed learning in Latin America. Hsu (2024) showed that integrating online forums, collaborative annotations, and multimedia activities within hybrid frameworks improved comprehension and autonomy, particularly when guided by teachers. However, studies caution that the success of hybrid models depends on careful instructional design and teachers' digital competence (Moncada Linares & Díaz Romero, 2016; Nusong & Watanapokakul, 2025).

Technology-Enhanced Language Learning: Opportunities and Challenges

The development of Computer-Assisted Language Learning (CALL) has shifted from repetitive drill exercises to interactive hypermedia systems, offering rich opportunities for EFL reading instruction. As Shadiev and Yu (2024) note, hypermedia tools enable learners to navigate content in flexible, non-linear ways, enhancing comprehension. Digital platforms can support both cognitive and metacognitive strategies—such as summarizing, predicting, and self-questioning—which research consistently links to better comprehension outcomes (Duke et al., 2021; Meniado, 2016; Pourhosein Gilakjani & Sabouri, 2017). Yet, implementing technology-based learning in the Middle East, including Iran, comes with challenges. Oskarita and Arasy (2024) point out that while digital tools can promote collaboration and access to authentic materials, their adoption is often hindered by institutional rigidity and varying levels of teacher digital literacy. Similarly, Eltaiba et al. (2025) and Tsegaye and Gezahegn (2024) identify infrastructural and cultural barriers that can limit the success of blended learning initiatives, even when students have generally positive perceptions.

Gender and Instructional Impact

The influence of gender on EFL reading achievement has been widely studied, but findings are inconsistent. Guerrero (2015) reported that female learners in Latin America often outperform males, citing higher motivation and more frequent strategy use. In contrast, Namaziandost et al. (2021) found no significant gender differences in reading comprehension following strategy-based instruction in Iran, a finding echoed by Sasani et al. (2018) in multidimensional teaching contexts. These results suggest that well-designed instruction can help close gender-related achievement gaps. In brief, the literature points to the promise of multidimensional and hybrid instructional models, supported by frameworks like Snow's (2010) multidimensional reading model and Sweller's (2024) Cognitive Load Theory. While both approaches show clear benefits, their successful adoption depends on contextual factors, including technological readiness and teacher expertise. This study builds on this body of work by directly comparing these models in the Iranian EFL context and examining their interaction with gender.

Methodology

Research Design

This study adopted a quasi-experimental design with three instructional groups to explore how different teaching models affect the reading comprehension of Iranian intermediate EFL learners. Two groups received experimental treatments—one following a multidimensional model and the other a hybrid model—while a control group experienced traditional instruction. This setup allowed for direct comparison between innovative and conventional methods and for examination of possible gender-related effects. A mixed-design framework was applied, combining between-subject factors (instructional model, gender) with within-subject factors (pretest vs. posttest performance). This design enabled a thorough investigation of both main effects and interactions.

Participants

Sixty Iranian intermediate EFL learners took part in the study, evenly split between males (30) and females (30), aged 17 to 30. These participants were selected from a larger pool of 120 students from the Second Language Academy and Simin Language Institute in Mazandaran Province. The Oxford Placement Test (OPT) was first administered to the larger group to assess general English proficiency. Following Pollitt's (2017) CEFR-based guidelines, those scoring

between 28 and 35 (B1 intermediate level) were eligible and randomly assigned to one of the three instructional conditions.

Materials and Instruments

To evaluate proficiency and track progress, the study used several key instruments:

Oxford Placement Test (OPT) – a 60-item multiple-choice test covering grammar, vocabulary, and reading comprehension. Learners within the intermediate scoring range (28–35) qualified for inclusion.

Reading materials – authentic, standardized passages sourced from IELTS and British Council tests (band scores 5–6), ensuring appropriate difficulty for intermediate learners.

Supplementary online resources – approved websites offering reading comprehension exercises and materials were provided via a dedicated Google Drive folder for easy access in and out of class.

Digital tools – the hybrid and multidimensional groups used online platforms with features like glossaries, strategy guides, and multimedia supports to enhance the reading process.

Data Collection Procedures

Data were gathered through pretests and posttests measuring reading comprehension. The pretest established a baseline before the eight-week intervention began.

Multidimensional group – received instruction targeting cognitive, metacognitive, affective, and social dimensions, with multimodal materials and collaborative tasks.

Hybrid group – experienced blended learning, alternating between in-person strategy sessions and interactive online activities.

Control group – followed a teacher-centered, translation-based approach with minimal learner interaction.

Table 1

Lesson Plan for Multidimensional Instruction Model

Lesson Component	Description	Time
Pre-reading Activities	Activate prior knowledge through discussion of learners' experiences and cultural perspectives related to the reading text. Encourage sharing and social interaction to foster motivation.	10 min
Cognitive Strategy Training	Explicit instruction on reading strategies such as skimming, scanning, inferencing, and summarizing, using scaffolded modeling and practice. Visual organizers (e.g., graphic organizers) were introduced.	15 min
Metacognitive Reflection	Learners monitor and evaluate their understanding and strategies; guided prompts encourage self-questioning ("What am I understanding? What strategies am I using?").	10 min
Affective Engagement	Use multimodal materials (videos, audio clips) related to reading topics to stimulate interest and emotional connection. Group discussions to share feelings and opinions on content.	10 min
Social Interaction	Collaborative tasks such as peer teaching or group problem-solving on reading comprehension questions promote peer feedback and negotiation of meaning.	15 min
Reading Practice	Reading authentic or semi-authentic passages aligned with the learners' level. Multimodal support (images, glossaries) is integrated to reduce cognitive load.	20 min
Post-reading Activities	Group summary presentations, strategy sharing, and reflections on comprehension gains and challenges. Encouragement of learner	10 min

Lesson Component	Description	Time
	autonomy through goal-setting for the next session.	

Table 2
Lesson Plan for Hybrid Instruction Model

Lesson Component	Description	Time
Face-to-Face Session Start	Brief review of previous online reading tasks and scaffolding of new reading objectives. Address learner questions and clarify difficulties encountered online.	15 min
Online Reading Assignments	Learners access selected reading passages via the custom online platform, embedded with interactive quizzes, glossaries, and annotation tools.	Self-paced (outside class)
Strategy Introduction (F2F)	Introduction of one or two reading strategies (e.g., predicting, summarizing) with demonstrations during class. Learners are encouraged to apply these online.	15 min
Collaborative Online Discussions	Facilitated online forums or synchronous chats where learners discuss reading content, share summaries, and clarify meanings under teacher moderation.	Flexible, scheduled around classes
Individual Reading Practice	Continued practice with digital texts incorporating multimedia support; learners encouraged to use platform resources autonomously.	Self-paced
Face-to-Face Application	In-class group activities to apply reading strategies collaboratively, including peer feedback on comprehension tasks initiated online.	15 min
Reflection & Feedback	Both online journaling and in-class reflection sessions on strategy use and comprehension progress; technical and pedagogical feedback given.	10 min

Table 3
Lesson Plan for Traditional (Control) Instruction Model

Lesson Component	Description	Time
Warm-up / Activation	Teacher-led discussion on topic relevance; limited learner interaction. Emphasis on vocabulary translation.	10 min
Presentation of Text	Reading text introduced; teacher reads aloud or students read silently; focus on word-for-word understanding and translation.	20 min
Vocabulary Explanation	Teacher-centered explanation of new vocabulary; students copy translations into notebooks.	15 min
Comprehension Questions	The teacher asks closed-ended or factual questions; learners respond mainly in L1, and minimal L2 output is expected.	15 min
Translation Exercise	Students translate passages sentence-by-sentence from English to Persian under teacher supervision.	15 min
Review and Recap	The teacher summarizes key points; limited peer interaction or learner strategy use.	10 min

Data Analysis

Collected data were analyzed using inferential statistical methods appropriate for mixed experimental designs. A mixed-design Analysis of Variance (ANOVA) was conducted to evaluate within-subject effects (pretest vs. posttest scores), between-subject effects (instructional condition and gender), and their interactions on reading comprehension outcomes. Independent samples t-tests complemented the ANOVA to compare mean differences between groups where relevant. Effect sizes (partial η^2) were calculated to indicate the magnitude of observed effects. Descriptive statistics (means, standard deviations) facilitated initial data overview and group performance comparisons. Data analysis was conducted using standard statistical software, and assumptions of normality, homogeneity of variance, and sphericity were checked and met to ensure the validity of the results.

This rigorous methodological approach enabled a comprehensive assessment of the relative impact of multidimensional and hybrid instructional models on reading comprehension, while also exploring the influence of gender among Iranian intermediate EFL learners.

Results

Answering Research Question One

The first research question sought to know if the three instructional methods, namely, Multidimensional, Hybrid, and Traditional (Control), affected posttest reading comprehension scores of the intermediate Iranian EFL learners significantly differently from each other. The researchers conducted a one-way between-subjects ANOVA to determine if the differences in posttest means were statistically significant.

Table 4

Descriptive Statistics for Posttest Reading Comprehension Scores

Condition	N	M	SD
Multidimensional	20	17.20	1.58
Hybrid	20	15.95	1.32
Control	20	15.20	1.44
Total	60	16.12	1.65

Table 4 presents descriptive statistics for posttest reading comprehension scores across three instructional conditions: Multidimensional, Hybrid, and Control. Each group comprised 20 participants. The Multidimensional condition yielded the highest mean score of 17.20 (SD = 1.58), indicating superior reading comprehension performance compared to the other groups. The Hybrid condition obtained a mean score of 15.95 (SD = 1.32), reflecting moderate gains relative to the Control group, which had the lowest mean score of 15.20 (SD = 1.44). The overall mean score across all 60 participants was 16.12, with a standard deviation of 1.65. These results suggest that the Multidimensional instructional approach was more effective in enhancing reading comprehension than both the Hybrid and Control methods, which demonstrated relatively smaller differences between them. The similarity in standard deviations across groups indicates comparable variability within each instructional condition.

Before analyzing variance (ANOVA), key assumptions were assessed. Visual inspection of the data distributions, supported by skewness and kurtosis statistics, yielded a p-value of 0.060, indicating that the normality assumption was not violated at the conventional significance level of .05. Furthermore, Levene's test for homogeneity of variances was non-significant, $F(2, 57) = 0.99$, $p = 0.378$, confirming that the error variances were equal across the instructional groups. The one-way ANOVA results presented in Table 5 indicate a statistically significant

difference among the three instructional groups in terms of reading comprehension scores. The between-groups sum of squares (SS = 40.83) with 2 degrees of freedom resulted in a mean square (MS) of 20.42. The F-ratio of 9.75, with 2 and 57 degrees of freedom, yielded a p-value less than 0.001, confirming that the differences in group means are highly significant.

Table 5

One-Way ANOVA

Source	SS	df	MS	F	p	Partial η^2
Between	40.83	2	20.42	9.75	<0.001	0.255
Within	119.35	57	2.09			
Total	160.18	59				

The within-groups variation accounted for a sum of squares of 119.35 with 57 degrees of freedom and a mean square of 2.09. The total sum of squares was 160.18 across 59 participants. Moreover, the partial eta squared ($\eta^2 = 0.255$) indicates that approximately 25.5% of the variance in reading comprehension scores can be attributed to the instructional condition, representing a medium to large effect size according to conventional benchmarks. These results suggest that the type of instructional method significantly impacts learners' reading comprehension outcomes.

Table 6

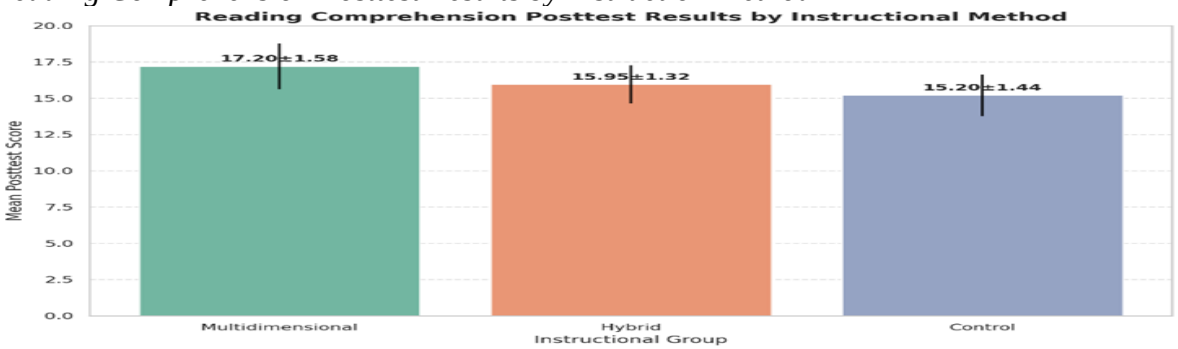
Post Hoc Comparisons for Posttest Scores

Comparison	MD	SE	p	95% CI
Multidimensional vs. Hybrid	1.25	0.46	0.030	[0.10, 2.40]
Multidimensional vs. Control	2.00	0.46	< 0.001	[0.85, 3.15]
Hybrid vs. Control	0.75	0.46	0.269	[-0.40, 1.90]

The post hoc comparisons in Table 6 examine pairwise differences between instructional groups on posttest reading comprehension scores. The results show that the Multidimensional group significantly outperformed both the Hybrid and Control groups. Specifically, the mean difference between the Multidimensional and Hybrid conditions was 1.25 (SE = 0.46), which is statistically significant at the p = 0.030 level, with a 95% confidence interval ranging from 0.10 to 2.40. Moreover, the Multidimensional group exhibited an even larger and highly significant advantage over the Control group, with a mean difference of 2.00 (SE = 0.46, p < 0.001), and a 95% confidence interval between 0.85 and 3.15. In contrast, the difference between the Hybrid and Control groups, with a mean difference of 0.75 (SE = 0.46), did not reach statistical significance (p = 0.269), as evidenced by a confidence interval that included zero (–0.40 to 1.90). Overall, these findings indicate that the Multidimensional instructional approach leads to significantly greater improvements in reading comprehension compared to both the Hybrid and Control conditions, while the Hybrid approach does not differ significantly from traditional instruction.

Figure 1

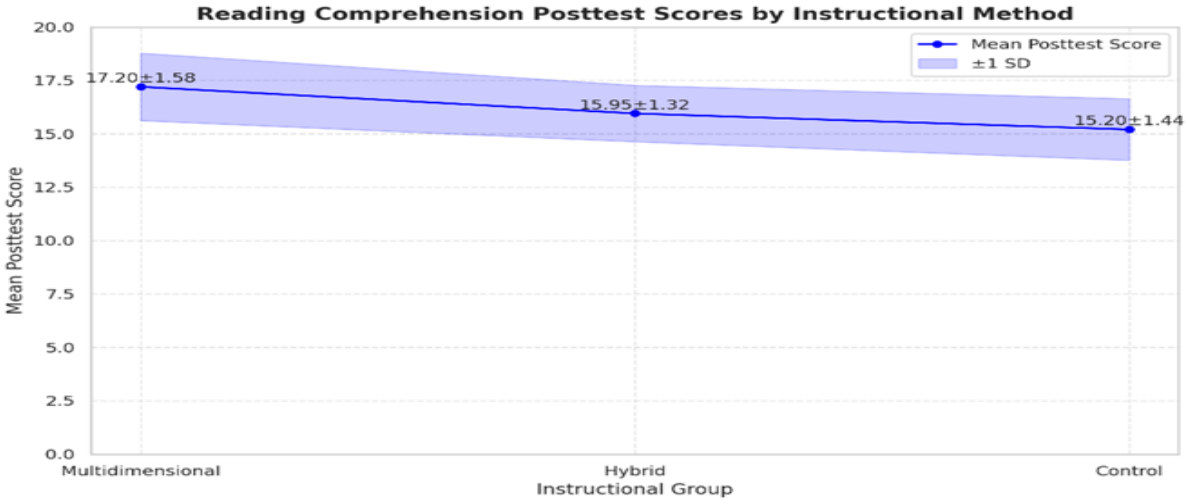
Reading Comprehension Posttest Results by Instruction Method



The bar graph shows that the Multidimensional instructional method resulted in the highest mean posttest score (17.20 ± 1.58) for reading comprehension, followed by the Hybrid method (15.95 ± 1.32), and then the Control group (15.20 ± 1.44). This suggests that the Multidimensional approach was the most effective in improving students' reading comprehension among the three instructional methods.

Figure 7

Reading Comprehension Posttest Scores by instructional method



The graph illustrates the mean posttest reading comprehension scores for three instructional groups: Multidimensional, Hybrid, and Control. The Multidimensional group achieved the highest average score (approximately 17.20), followed by the Hybrid group (around 15.95), and the Control group scored the lowest (about 15.20). The error bars indicate variability within each group, with the Multidimensional group showing slightly greater variation. Overall, the data suggest that the Multidimensional instructional method resulted in better reading comprehension outcomes compared to the Hybrid and Control methods.

Answering Research Question Two

Addressing RQ2, if there are statistically significant differences in reading comprehension gains between male and female learners across these instructional conditions, the following analyses were conducted.

Table 8

Descriptive Statistics of Pretest and Posttest Scores by Condition and Gender

Condition	Gender	N	Pretest		Posttest	
			M	SD	M	SD
Multidimensional	Male	9	13.44	2.35	17.44	1.94
	Female	11	14.09	1.14	17.00	1.26
Hybrid	Male	10	15.30	1.34	16.20	1.69
	Female	10	14.80	2.04	15.70	0.82
Control	Male	11	13.73	1.90	14.91	0.94
	Female	9	14.67	1.80	15.56	1.88

The table presents descriptive statistics for pretest and posttest reading scores, broken down by instructional condition (Multidimensional, Hybrid, Control) and gender (male, female). In the Multidimensional condition, both male and female participants showed substantial improvement from pretest to posttest. Males increased their average scores from 13.44 to 17.44, while females improved from 14.09 to 17.00, indicating that this approach was particularly effective in enhancing reading performance for both genders.

In the Hybrid condition, both males and females exhibited more modest gains of about 0.9 points, with males progressing from 15.30 to 16.20 and females from 14.80 to 15.70. Although the gains are smaller compared to the Multidimensional group, the improvement suggests some benefit from this instructional format.

The Control group showed the least improvement, with males increasing scores from 13.73 to 14.91 and females from 14.67 to 15.56, reflecting minimal gains over the intervention period. Notably, across all groups, males generally had slightly larger gains than females, especially in the Multidimensional condition.

Overall, the data suggest that the Multidimensional instructional approach led to the greatest gains in reading comprehension scores for both male and female learners, while the Hybrid condition produced moderate improvements and the Control condition showed limited progress.

A between-group analysis was conducted to test for general differences in reading comprehension scores as a function of Condition, Gender. The Results are shown in the following table.

Table 9

Between-Subjects Effects on Overall Reading Comprehension Scores

Source	df	F	p	Partial η^2
Condition	2	1.92	.157	.066
Gender	1	0.12	.729	.002
Condition × Gender	2	0.98	.380	.035

The between-subjects analysis examined whether Condition (instructional method), Gender, or their interaction (Condition × Gender) significantly affected reading comprehension scores. Here's what the results show:

Condition: The effect of instructional method was not statistically significant (F (2) = 1.92, p = .157), indicating that there were no significant overall differences in reading comprehension scores between the three instructional groups (Multidimensional, Hybrid, Control). However, the

partial $\eta^2 = .066$ suggests a small-to-moderate effect size, meaning some practical impact might exist, even if it wasn't statistically significant.

Gender: Gender had no significant effect on reading comprehension (F (1) = 0.12, p = .729), and the partial $\eta^2 = .002$ indicates a negligible effect size.

Condition × Gender interaction: The interaction between instructional method and gender was also not significant (F (2) = 0.98, p = .380), with a small effect size (*partial $\eta^2 = .035$*). This means the effect of instructional method on reading comprehension did not differ meaningfully by gender.

Generally, there were no statistically significant differences in reading comprehension scores based on instructional condition, gender, or their interaction, although the condition variable showed a small-to-moderate practical effect worth further exploration.

Discussion

This study set out to compare the impact of multidimensional and hybrid instructional models with traditional reading instruction on the comprehension skills of Iranian intermediate EFL learners, while also examining whether gender influenced learning outcomes. The findings clearly show that the multidimensional approach—integrating cognitive, metacognitive, affective, and social components—was significantly more effective than either the hybrid or the traditional model. Learners in the multidimensional group improved their scores by an average of 3.40 points, while the hybrid and control groups posted much smaller gains of 0.90 and 1.05 points, respectively. Although the hybrid approach did outperform the control group slightly, the difference was not statistically significant.

Gender analysis revealed no meaningful differences in improvement between male and female learners, nor any significant interaction between gender and instructional approach. This suggests that in this context, the choice of instructional model had a far greater effect on reading comprehension than gender.

These results align closely with previous studies highlighting the benefits of multidimensional teaching in EFL reading. Research by Rahmanu and Molnár (2024), Boyle (2024), and Sasani et al. (2018) all reported that combining explicit strategy instruction, metacognitive reflection, and collaborative learning activities leads to stronger reading performance and higher motivation than more traditional, teacher-led methods. Similar benefits were reported in Hung's (2011) work, where multimodal materials boosted both cognitive processing and emotional engagement.

The current study also supports the positive role of hybrid learning documented in earlier research (Hsu, 2024; Klimova & Kacetl, 2015; Muñoz Melo & Guayacán Velasco, 2018; Soudkhah Mohammadi et al., 2025). While the hybrid approach in this study yielded smaller gains than the multidimensional model, it still offered advantages over traditional instruction, reinforcing its value as a flexible, learner-centered option when designed and implemented effectively.

As for gender, the lack of significant differences echoes the findings of Namaziandost et al. (2021) and Sasani et al. (2018), suggesting that high-quality, strategy-focused instruction can act as an equalizer, reducing performance disparities between male and female learners. This contrasts with studies like Guerrero (2015), which found that female learners often outperform males, implying that instructional design and classroom context may play a decisive role in shaping outcomes.

Conclusion

This study compared the effects of multidimensional, hybrid, and traditional instructional models on reading comprehension among Iranian intermediate EFL learners, with attention to gender

differences. The multidimensional model—addressing cognitive, metacognitive, affective, and social elements—produced significantly greater improvements than either the hybrid or traditional approach. The hybrid model showed modest advantages over traditional methods but did not reach statistical significance. No significant gender differences or gender–method interactions emerged, reinforcing the idea that well-designed instruction can narrow performance gaps between male and female learners.

The findings add to the growing body of evidence in support of multidimensional reading instruction in EFL settings. By engaging multiple aspects of the reading process, such instruction fosters deeper comprehension, sustained motivation, and stronger strategy use. The moderate benefits of the hybrid model also highlight its potential as a flexible, technology-supported supplement to classroom teaching.

For educators and curriculum planners, the key takeaway is that instructional quality—not learner gender—is the more critical factor in boosting reading comprehension. Professional development should prioritize training teachers to implement multidimensional strategies and integrate technology in meaningful ways. However, this study's scope was limited by its relatively short duration, small sample size, and focus on intermediate learners in an urban Iranian setting. To build on these results, future research should explore the effects of these models over longer periods, with larger and more varied populations, and in different cultural contexts.

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